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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,673	09/17/2003	Hiroya Kirimura	TGW-0202	2468

23353 7590 07/11/2006

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EXAMINER	
ARANCIBIA, MAUREEN GRAMAGLIA	
ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 07/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/663,673	KIRIMURA ET AL.	
	Examiner	Art Unit	
	Maureen G. Arancibia	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4 and 16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4 and 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *04/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,099,687 to Yamazaki in view of U.S. Patent 5,006,192 to Deguchi.

In regards to Claim 1, Yamazaki teaches a plasma processing apparatus (Figures 2 and 3), comprising a vacuum chamber 110 with an exhausting device 130; a supporting member 141 for supporting an article 180 to be processed; a gas supplying device 120 opposed to the surface of article 180, with a gas supply portion 124 and gas supply holes 123 (Column 4, Lines 5-13); and a power applying device 150 including four divided electrodes 151a-151d and high frequency power sources 152a-152d individually connected to each of the divided electrodes. The gas supply member is not connected to the power sources 152a-152d (Figure 3). The exhausting device 130 discharges gas from the periphery of the supporting member 141, which is a region in the vicinity of the periphery portion of the gas supply member (i.e. the periphery of the chamber 110), *as broadly recited in the claim.* (Column 4, Lines 14-31) The divided electrodes 151a-151d are disposed in a quadrilateral shape in a plan view surrounding the space between the article to be processed and the gas supply surface portion of the gas supply member, each divided electrode being disposed adjacent an inner surface of

the vacuum container 110 such that the gas supply member, the article 180 to be processed, and the supporting member 141 are disposed internally of the quadrilateral shape. (Figure 3)

Yamazaki does not expressly teach that the supporting member is grounded.

Deguchi teaches that a supporting member 1a can be grounded. (Column 4, Lines 20-21; Column 6, Lines 17-19)

It would have been obvious to one of ordinary skill in the art to modify the apparatus taught by Yamazaki to have the supporting member be grounded, as taught by Deguchi. The motivation for doing so, as taught by Deguchi (Column 4, Lines 19-32), would have been to aid in the formation of a high voltage electric field in the vacuum chamber.

Yamazaki does not expressly teach that each of the divided electrodes is in the shape of a bent plate forming two electrode sections integrally connected substantially perpendicularly to each other.

Deguchi teaches electrodes 10 are each in the shape of a bent plate forming two electrode sections integrally connected substantially perpendicularly to each other (*electrodes 10 having a L-shaped cross sectional form*; Column 5, Lines 30-34; Figures 3a and 3b), as broadly recited in the claim.

It would have been obvious to one of ordinary skill in the art to modify the divided electrodes taught by Yamazaki to each have the shape of a bent plate forming two electrode sections integrally connected substantially perpendicularly to each other, as taught by Deguchi. The motivation for making such a modification, as taught by

Deguchi (Column 4, Lines 15-67; Column 5, Line 30 - Column 6, Line 2), would have been to aid in the formation of plasma between the divided electrodes and the inner walls of the vacuum chamber (*in a space 9 outside of the substrate treating discharge space 5*; Column 5, Lines 30-34), in order to perform discharge cleaning of the vacuum chamber between process runs.

It has been held that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). In the instant case, the combination of Yamazaki and Deguchi teaches all of the structural limitations of the claim, and would structurally capable of performing the intended use of forming a thin film on an article to be processed, simply by varying the process settings and type of process gas. (See also MPEP 2114.)

3. Claims 4 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki in view of Deguchi as applied to Claim 1, and further in view of Japanese Patent Application Publication 2001-189308 to Fujita et al. The following rejection refers to the Figures and English Machine Translation (EMT) of Fujita et al.

The teachings of Yamazaki and Deguchi were discussed above.

In regards to Claim 4, the combination of Yamazaki and Deguchi does not expressly teach that the distribution density and area of opening of the gas supply holes vary with radial distance from the center of the gas supply surface.

Fujita et al. teaches that the distribution density and area of opening of the gas supply holes 51, 52, 53 vary with radial distance from the center of the gas supply surface 54. (Figure 7; EMT, Paragraph 22)

It would have been obvious to one of ordinary skill in the art to modify the gas supply surface taught by the combination of Yamazaki and Deguchi to vary the distribution density and area of opening of the gas supply holes with radial distance from the center of the surface, as taught by Fujita et al. The motivation for making such a modification, as taught by Fujita et al. (EMT, Paragraph 22), would have been to improve the rate of film formation and the disassociation effectiveness of the processing gas in the plasma.

In regard to Claim 16, the combination of Yamazaki and Deguchi does not expressly teach that the apparatus further comprises a driving device disposed at least partially in the vacuum container and connected to the supporting member, the driving device being operative to move the supporting member either towards or away from the gas supply surface portion of the gas supply member.

Fujita et al. teaches that a plasma processing apparatus (Figure 1) comprises a driving device 12 (*stanchion*) disposed at least partially in a vacuum container 11 and connected to a supporting member 8 that supports an article 10 (Figure 1), the driving device being operative to move the supporting member either towards or away from the gas supply surface portion of a gas supply member 4 (*this stanchion is constituted possible [rise and fall]*). (Figure 1; EMT, Paragraph 9)

It would have been obvious to one of ordinary skill in the art to modify the apparatus taught by the combination of Yamazaki and Deguchi to include a driving device as taught by Fujita et al. The motivation for doing so, as taught by Fujita et al. (EMT, Paragraph 9), would have been to adjust the spacing between the gas supply member and the support member (*the inter-electrode spacing*) in a suitable fashion.

Response to Arguments

4. Applicant's arguments with respect to claims 1, 4, and 16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen G. Arancibia whose telephone number is (571) 272-1219. The examiner can normally be reached on core hours of 10-5, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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